**THE SENARIO**

Rivers Window Tinting (RWT) is a small building company that specialises in window tinting for both commercial and residential buildings.

When a customer calls RWT and requests a quote, the secretary passes this request on to the nearest sales person. The sales person then consults their diary and books a convenient time for the customer to visit the property to discuss what is required.

At the property the sales person measures the windows that will be tinted and uses a duplicate quotation pad to work out a rough quotation price.

This price is then given to the customer. If the customer accepts the quotation (within 7 days), the installation is booked in at the next most convenient time to the customer. The sales person enters the customer’s details and the starting date into a central database at the RWT head office. The installers are then booked. After the installation has been completed, and the work meets with the approval of the customer, the fee for the job is due.

RWT has a small network which consists of three PCs running Windows 7. Each has 400GB HDD, 2GB RAM, DVD R/W, sound card, 1Gb LAN card, keyboard, mouse and 19” LCD monitors. They are located in the following areas:

one in the manager’s office, one under the secretary’s desk and one in the general office used by the sales people.

All of the PCs are networked in a star topology with the manager’s computer acting as a file server (via shared folders).

**THE DESIGN BRIEF**

RWT would like a software solution that will allow RWT to manage customer data at the central office, as well as a mobile software solution that will allow quotes to be accurately made on-site. The first step in this process is the creation of a software specification document.

Students are to complete the following tasks in relation to the above design brief.

Tasks

* Drawing a context diagram and a data flow diagram for the current system.
* Explaining inefficiencies in the flow of data in the organization and how these are preventing goals being achieved.
* Stating two objectives related to this goal, for the proposed new system.
* Drawing a use cases diagram that describes the way the new software solution will work.
* Listing the tasks that will need to be included in a project management plan.
* Completing a brief software requirements specifications (SRS) that includes:
  + Constraints of your solution
  + Scope of your solution
  + User requirements of your solution.
  + the proposed architecture of the software solution,
  + Methods of transmission
  + Modules within the solution and security considerations.

discuss concepts such as organisational aims and system goals and objectives

with a view to understanding the relationship between them

investigate user needs using a range of methods such as surveys (paper-based,

electronic), interviews, email, mailing lists, video conferencing

complete an incomplete data flow diagram, which has a list of processes

discuss the differences between the layers in the OSI model and determine which

of these would be the most relevant to a software developer

investigate the role and skills required of the people involved with information

systems

investigate the school network and identify the challenges that a software

developer would encounter in creating software to reside in and operate on such

a network

investigate the types of threats that need to be taken into account when designing

software for a network environment

analyse an information problem and document the findings as software

requirements specifications (SRS)

**Example activities**

Version 1: Updated July 2010

Tolbert IT Services has been contracted by an

online auction website to write the software that will

manage the auction items, bids and user profiles.

The analysis of the current system has already

been completed. Tolbert IT Services have designed

aspects of the new system already. They need help

in coding the calculation module, which will add a

percentage commission to the final bid price and

an amount of postage based on the location of the

buyer.

The specifications of this module are:

When a sale is finalised, a 12.5% commission is

added to the final sale price. The successful bidder

enters their postcode, and the postage is calculated

by using the table of values below:

0000–0999: Northern Territory – $25.00

1000–1999: New South Wales – $15.00

2000–2999: ACT – $15.00

3000–3999: Victoria – $12.00

4000–4999: Queensland – $20.00

5000–5999: South Australia – $15.00

6000–6999: Western Australia – $25.00

The successful bidder may have a coupon that they

can enter, which will give them a discount (or other

bonus). Even though coupon types can be added

or removed, the module that will be created should

cater for the following coupon codes:

‘BIGSALE’ – 10% discount on final total (including

the commission and the postage)

‘FREEPOST’ – free postage

‘SMALLCOMMS’ – pay only 5% commission

The student task is to write a prototype program

that can be used to test the calculation of the final

price after a bidder has been successful in their bid

for an item.

Students will:

• Write an algorithm in pseudocode to represent

the calculation process.

• Design a data dictionary that shows the required

data items, a description of their purpose, their

format, their size and their data type.

• Design a test table to test the program.

• Include sufficient internal documentation so that

others will be able to modify the code as part of

the whole system development.

• Test the program.

• Within the testing table, add columns that allow

comparison of the program developed with

the algorithm. That is, explain how the actual

capabilities of the program compare with the

intended capabilities by adding columns titled

‘intended result’ and ‘actual result’.